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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/764,037

01/23/2004

Ying-Cheng Chuang

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08/25/2006

LADAS & PARRY

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LOS ANGELES, CA 90036-5679

EXAMINER

THOMAS, TONIAE M

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/764,037	CHUANG ET AL.	
	Examiner	Art Unit	
	Toniae M. Thomas	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-19 is/are allowed.
- 6) ☒ Claim(s) 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/395,991.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office action is responsive to the amendment filed on 02 June 2006. Currently, claims 11-19 are pending.

Claim Objections

2. Claims 1-15 are objected to because of the following informalities:
“conductive” should be changed to “conducting” (claim 11, line 7; claim 11, line 8). Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The meaning of the phrase “geometric center,” as recited in claim 11, is unclear (claim 11, line 7). For purposes of examination, the claim language “geometric center” of the second conducting layer 36 is taken to be that point of the layer that coincides with the center point of the bird’s beak region 43.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2822

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

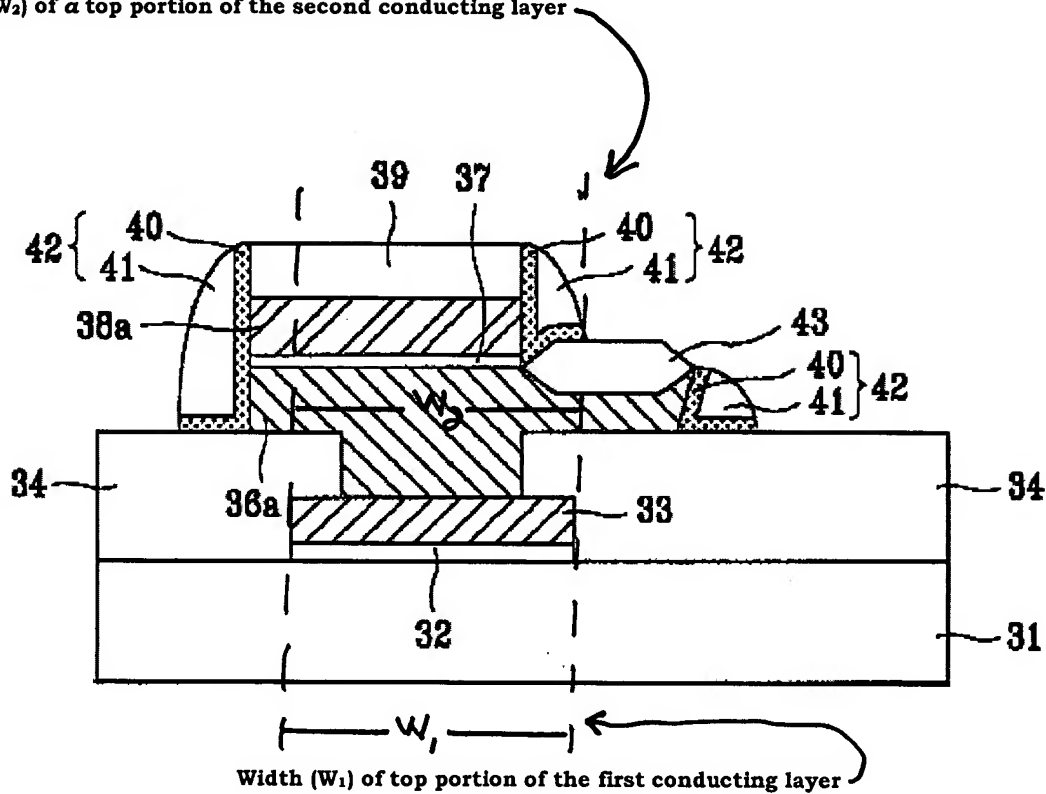
4. Claims 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Na et al. (US 2002/0017680 A1).

The Na et al. pre-grant published application (Na) discloses a floating gate (see figs. 5A-5I and accompanying text). The floating gate comprises a first conducting layer 33 with a top surface and a sidewall (see fig. 5H and par. 43, lines 1-6, wherein a first edge is formed at an intersection of the top surface and the sidewall, the sidewall and portions of the top surface being covered by a dielectric material (fig. 5H and par. 44, lines 1-5); and a second conducting layer 36 with a bird's beak edge, wherein the second conducting layer is formed on the first conducting layer, and a vertical line passing through the geometric center of the second conductive layer divides the second conductive layer into two sides that are mirror images of one another (fig. 5H and par. 51, lines 8-12)¹.

¹ The bird's beak edge of the second conducting layer corresponds to the bird's beak shape of the tunneling insulation film 43.

Figure A

Width (W_2) of a top portion of the second conducting layer



The first conducting layer 33 comprises a poly layer (par. 43, lines 1-6).

The second conducting layer 36 comprises a poly layer (par. 45, lines 1-4).

A bottom portion of the second conducting layer 36 is narrower than a top portion of the first conducting layer 33 (see fig. 5H).

The width of a top portion of the second conducting layer 36 is equal to a width of the top portion of the first conducting layer 33 (see Fig. B below).

5. Claims 16-19 are allowable over the prior art of record. The prior art of record does not anticipate, teach or suggest a floating gate substantially as claimed, the floating gate comprising a second conducting layer with a concave top surface and a concave sidewall, wherein an edge is formed at an intersection of the concave top surface and the concave sidewall, as recited in claim 16.

Applicant's arguments filed on 02 February 2006 have been fully considered, but are not persuasive for reasons as follows.

Claim 11, as presented in the amendment filed on 02 June 2006, recites
“a vertical line passing through the geometric center of the second conducting

layer divides the second conductive layer into two sides that are mirror images of one another” (claim 11, lines 7-8). In the remarks submitted on 02 June 2006, Applicants argue that the Na et al. application publication (Na), US 2002/0017680 A1, which was relied upon in the final Office action mailed on 07 March 2006, does not disclose, suggest or teach a vertical line passing through the geometric center of the layer 36, such that the layer 36' is divided by the vertical line into two sides that are mirror images of one another.

Applicant has not defined the term “geometric center.” As explained above, given the broadest, reasonable interpretation, the geometric center of the layer 36 is taken to be that point of the layer that coincides with the center point of the bird's beak region 43. Thus, a vertical line passing through the second conducting layer at this point will divide the portion of the layer 36 underlying the bird's beak region into two sides that are mirror images of one another, as shown in figure B above.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the

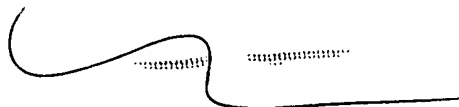
advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toniae M. Thomas whose telephone number is (571) 272-1846. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571) 272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TMT
21 August 2006



Mary Wilczewski
Primary Examiner